

### **REMARKS**

Claims 1-14 are pending in the present application, with claim 8 being withdrawn and new claim 13 being added. Claims 5 and 6 are amended herein for clarity. No new matter has been added with the amendment to claims 5 and 6. Support for new claims 13 and 14 can be found at least in originally filed claim 1 and page 11, lines 2-10 of the specification. As such, entry and consideration thereof are respectfully requested.

#### **Objections to the specification**

The specification has been objected to for the informalities noted in Items 7-10, page 3, of the Office Action. The specification has been reviewed and any grammatical or typographical errors corrected, as well as any trademarks being duly noted with associated generic terminology. In addition, the Abstract has been amended to be in proper format. Finally, the Brief Description of the Drawings has been amended as requested by the Examiner. No new matter has been added with the amendments to the specification.

#### **Rejections under 35 U.S.C. § 112**

Claims 5-7 have been rejected under 35 U.S.C. 112, 2<sup>nd</sup>, as being indefinite. More specifically, claim 5 has been rejected for reciting that the support is a support for a microarray. The Examiner indicates that it is not clear whether it is intended that the support itself is a microarray or whether the microarray is placed on any support. Claim 5 has been amended as suggested by the Examiner. Withdrawal of the rejection is therefore respectfully requested.

Claim 6 has been rejected as being unclear in the recitation of “a produced microarray” for a lack of antecedent basis. Claim 6 has been amended to provide proper antecedent basis for all terms. Withdrawal of the rejection is therefore respectfully requested.

#### **Issues under 35 USC § 102**

Claims 1-7 have been rejected under 35 U.S.C. § 102(b) as being anticipated by JP 2001-178472 Machine/English Translation as evidenced by Billig et al. JP ‘472 is asserted to teach methods of fixing DNA fragments on a solid-phase support. The solid support of JP ‘472

allegedly contains photoreactive reagents. JP '472 is noted to be silent with regard to the DNA fragments being low molecular weight compounds; however the Examiner asserts that this characteristic is an inherent property of DNA, as evidenced by Billig et al. Applicants traverse this rejection and withdrawal thereof is respectfully requested.

The instant invention, as encompassed by claim 1, is directed to a method of fixing a low-molecular compound on a solid-phase support, comprising the steps of:

- (1) bringing a solution containing a low-molecular compound into contact with a solid-phase support having a photoreactive compound bonded to the surface;
- (2) evaporating to dryness the solution containing the low-molecular compound in the state of being in contact with the solid-phase support; and
- (3) irradiating the solid-phase support with light to form a covalent bond between the photoreactive compound and the low-molecular compound.

As noted by the Examiner, JP '472 discloses methods of immobilizing DNA. The Examiner interprets the instant claims as encompassing the immobilization of DNA as "a low molecular weight compound." However, the instantly claimed method does not recite or encompass a method of immobilizing "low molecular weight compounds." Rather, as recited in the claims the instant invention is directed to a method of fixing a low-molecular compound. The specification defines low molecular compounds on page 11, lines 2-10 as follows:

As used herein, the term "a low-molecular compound" refers to an organic compound having primarily a carbon, hydrogen, oxygen, nitrogen or sulfur atom as the main constituent atom, such as a primary metabolite of an oligosaccharide, a polypeptide or the like; a secondary metabolite of a fatty acid, a polyketide (acetogenin), isoprenoid, phenylpropanoid, alkaloid or the like; a synthetic organic compound having an aromatic ring or a heterocyclic ring of about 200 daltons in molecular weight; or any complex thereof; in particular, a compound capable of inhibiting or enhancing the function of a protein by binding to the protein.

Thus, the instant invention is does not encompass "low molecular weight compounds", such as DNA fragments, but rather "low molecular compounds" as defined in the specification. "Low molecular compound" is a literal translation of the Japanese term "teibunshi", as used in the Japanese priority application, No. JP 2003-104928. The term "teibunshi" might alternatively be interpreted as "small molecule". In discussing the background of the invention, the present

specification states that Non-patent reference No.1 (MacBeth et al. J. Amer. Chem. Soc. 1999, 121: 7967) discloses “low-molecular microarrays” (see page 1, lines 15-20 of the specification). The MacBeth et al. article (Non-patent reference No. 1 of the specification) is entitled “Printing Small Molecules as Microarrays and Detecting Protein-Ligand Interactions en Masse”. The terms “small molecule microarray” and “DNA microarray” are two different distinct terms, which are used in the microarray field and which mean different things, i.e. a small molecule microarray does not include DNA microarrays. Thus, the disclosure of DNA microarrays in JP ‘472 does not anticipate the instantly claimed invention for fixing low molecular compounds (i.e. small compounds). Withdrawal of the rejection is, therefore, respectfully requested.

### **Issues under 35 USC § 103**

Claims 9-12 have been rejected under 35 U.S.C. § 103(a) as being obvious over JP ‘472, as evidenced by Billig et al., combined with Chandler et al. JP ‘472 is asserted to differ from the invention of claims 9-12 only in not specifically teaching low molecular weight immobilization onto beads and the utility of such beads. Chandler et al. is asserted to teach methods for multiplexed diagnosis and genetic analysis of enzymes, DNA fragments, etc, via labeled bead sets using flow cytometry with parameters of FLS, SLS, fluorescent emission etc. The Examiner asserts that it would be obvious to use the DNA immobilization techniques of JP ‘472/Billig et al. with the bead populations and detection/analysis methods of Chandler et al., so as to achieve the invention of claims 9-12. Applicants traverse this rejection and withdrawal thereof is respectfully requested.

The instant rejection is based on the erroneous interpretation of the claims as encompassing microarrays of DNA fragments. As discussed above, the instant invention is directed to low molecular compounds or small molecules, which are different from DNA fragments. The cited references fail to disclose or suggest methods of fixing small molecules. As such, the instant invention is not *prima facie* obvious over the cited references and withdrawal of the rejections is respectfully requested.


In view of the above amendment, applicant believes the pending application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact MaryAnne Armstrong, Ph.D., Reg. No. 40,069 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.147; particularly, extension of time fees.

Dated: SEP 2 2008

Respectfully submitted,

By   
MaryAnne Armstrong, Ph.D.  
Registration No.: 40,069  
BIRCH, STEWART, KOLASCH & BIRCH, LLP  
8110 Gatehouse Road  
Suite 100 East  
P.O. Box 747  
Falls Church, Virginia 22040-0747  
(703) 205-8000  
Attorney for Applicant